

“Test Site in Tuz Gölü Salt Lake for Absolute Radiometric Calibration”

Remote sensing applications employing quantitative approaches by establishing a correlation between radiometric data and physical properties of material under inspection has become more frequent and increased the need for accurate radiometric calibration coefficients for remote sensing sensors, in order to transform digital numbers into physical values like radiance and reflectance. Therefore, the importance of performing a calibration campaign increased significantly. Being aware of this significance, TUBITAK-UZAY is planning to build-up an absolute radiometric calibration test site in Tuz Gölü salt lake.

A place should meet some strict requirements in order to become a radiometric calibration test site. A potential test site is Tuz Gölü salt lake in Turkey. It has a surface which is sufficiently large, flat and homogeneous. It is located at a high altitude, has a semi-arid climate, low loading of atmospheric aerosol, high surface reflectance and a high probability of clear weather.

Tuz Gölü lake is the second biggest lake in Turkey. It is located in central Anatolian region, 105 km NE of Konya and 150 km SSE of Ankara (capital of Turkey). The site is easily accessible; close to main roads and Esenboğa and Konya airports. For most of the year, this very shallow and saline lake has an area of 1,500 km² at its peak. The lake is approximately 80 km long and 50 km wide.

Location: 38 50°N, 33 20°E Central Anatolia, Turkey

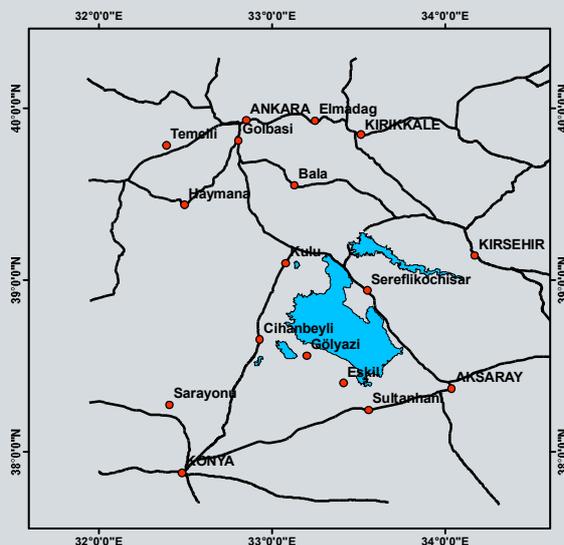
Elevation: 905 m

Total area: 1964 km²

Surface type: Salt lake

Atmospheric conditions: Sunny and cloud-free in dry season (July-August). Low aerosol loading.

Properties: It is extremely saline and during the summer %95 of water in the lake dries up and exposes an average of 30-80 cm thick salt layer. It is a bright natural target, free of vegetation. It is a large and flat site; the salt covered area is almost 1900 km² during dry season.



Tuz Gölü salt lake and vicinity





Spot 5, 28.11.2006, Sirius Catalogue

Other Salt Lake Calibration Test Sites

1) White Sands, New Mexico, USA



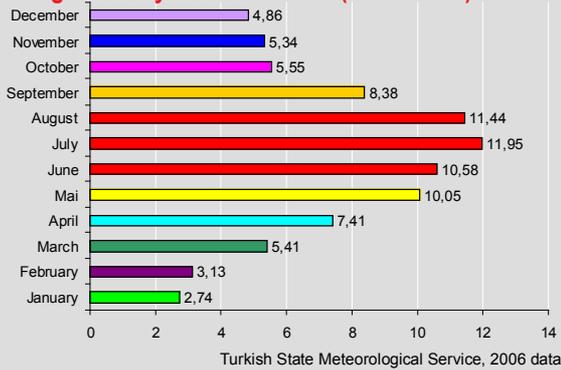
Location: New Mexico (32.23° N 106.28° W)
Elevation: 1250 m
Size: 1750 km²
Surface type: Dry salt lake
General atmospheric conditions: Suitable weather conditions, many clear days
Properties: A mountain basin, comprises a mixture of salt pans and dunes.
[\(www.optics.arizona.edu/rsg/\)](http://www.optics.arizona.edu/rsg/)

2) Lake Frome, Australia

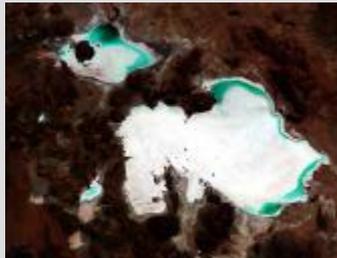


Location: South Australia (30.62° S, 139.87° E)
Elevation: Below sea level
Size: 2600 km²
Surface type: Dry salt lake
General atmospheric conditions: Clear
Properties: The surface is uniform and flat.
www.csiro.au/science/EarthObservation.html

Average Monthly Insolation Time (in 24 hours)

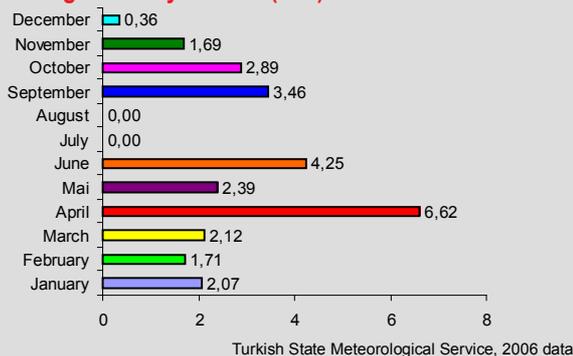


3) Uyuni Salt Flats, Bolivia



Location: Andean Bolivian (20.5° S, 67.6° W)
Elevation: Plateau lying at an altitude of 3700 m
Size: 10600 km² largest salt lake on Earth
Surface type: Salt lake
General atmospheric conditions: Clear
Properties: Only a marginal part of its surface remains wet during the dry season thus leaving large areas of dry and highly reflective salt.
en.wikipedia.org/wiki/Salar_de_Uyuni

Average Monthly Rainfall (mm)



4) Salar de Arizaro, Argentina



Location: Andes Mountains, Argentina (25° S, 68° W)
Elevation: 3800 m
Size: 1500 km²
Surface type: Dry salt lake
General atmospheric conditions: Some years no rain at all
Properties: Surface is extremely rough, locally uniform and bright.
www.ncaveo.ac.uk/calibration/radiometry/in-flight/